

REMARKS

Reexamination and reconsideration are respectfully requested in view of the foregoing amendments and the remarks that follow. Claims 1-3, 7, 8, 12-17, and 19 remain for consideration on the merits. Claims 4-6, 9, 10, and 12-16 were previously canceled. Claim 18 has been canceled herein. Claim 20 is subject to restriction and has been canceled herein without prejudice or disclaimer. Applicant preserves the right to file a divisional application thereon.

Various of the pending claims have been amended herein and are discussed below.

Claim Objections

Claim 1 has been objected to as set forth under item 3 of the Office Action. Accordingly, claim 1 has been amended to remove the extraneous "2" following the last sentence of the claim.

Claim 19 has been objected pursuant to 37 C.F.R. §1.75(c) as being in improper dependent form for failing to further limit the subject matter of the previous claim. 37 C.F.R. §1.75(c) states in part that: "One or more claims may be presented in dependent form, referring back to and to further limiting another claim or claims". Claim 19 is dependent upon independent claim 1. Dependent claim 19 further delineates that the composition recited in claim 1 is suited for use as a multiple emulsion in the specified products set forth in the dependent claim. Applicants submit that specified use for the composition of claim 1 as a multiple emulsion for the specific products set forth claim 19 is a further delineation of the subject matter of the independent claim.

35 U.S.C. § 112

Relying on 35 U.S.C. § 112, second paragraph, the Examiner rejected claims 1-3, 7, 8, 11, and 17-19 as being indefinite as set forth under item 6 of the Office Action. Claim 1 has been amended to delineate that the recited wt.% range of the emulsifier originally delineated in the claim is associated with the discontinuous phase (1) (water-in-oil phase) as opposed to the continuous phase (2) (oil-in-water phase). It is clear from the disclosure at page 5, lines 25/26

(as originally filed) that the recited range of 0.1 wt.% to 30 wt.% of the final multiple emulsion is associated with the water-in-oil phase.

With further reliance on 35 U.S.C. § 112, second paragraph, the Examiner rejected claims 3 and 11 as set forth under item 7 of the Office Action. In claim 3, the word "like" has been replaced with traditional Markush language "selected from the group consisting of". Also, the phrase "such as" has been deleted along with the attendant species embodiments referenced by the generic phrase. In claim 11, the wording "such as," "including but not limited to," and "including" have been deleted, as well as some of the attendant species embodiments referenced under the recited genera.

Again relying on 35 U.S.C. § 112, second paragraph, the Examiner rejected claim 3 as set forth under item 8. Accordingly, the claim language has been amended to read grammatically correct. More specifically, the word "functionalized" has been changed to "functionalization" in both occurrences (phrases) which it appears in the claim. The phrases now read: "the reaction products of polyisobutylene with...followed by further functionalization by reaction with...". In the second phrase which reads: "...reaction products of polyisobutylene with glyoxylic acid, lower alkyl glyoxylates, or lower alkyl hemiacetals, followed by further functionalization with primary or secondary amines, primary or secondary alkanolamines or polyamines," these reactions are well known in the lubricant additive art. Accordingly, these reactions are scientifically supported.

Further relying on 35 U.S.C. § 112, second paragraph, the Examiner rejected claim 11 as set forth under item 9 of the present Office Action. Accordingly, the claim language has been amended by deleting the word "oil" in the phrase "oil composition". The word "composition" has antecedent basis throughout the preceding claim language.

In addition to the foregoing amendments to claim 11, several other amendments have been effected therein. In the second line of the claim "comprises" has been changed to a Markush phrase to make it clear that the claimed external aqueous phase emulsifier is not comprised of the recited components but is individually selected from the recited components. Similarly, in the second paragraph of the claim "comprises" has been changed to a Markush phrase to clearly indicate that the claimed thickener component is not comprised of the recited

components but individually selected from the recited thickener components. The same amendment has been made in paragraphs 3, 4, and of the claim with respect to the claimed water soluble additives, water dispersible additives, and oil phase additives, respectively. Again, these amendments are necessary to delineate that the respective additives are not comprised of the recited components but are individually selected from the recited additive components.

Also, in claim 11, several spelling errors have been corrected as indicated.

In claim 7, the word "comprises" has been changed to a Markush phrase to indicate that the claimed coemulsifier is not comprised of the recited components but individually selected from the recited coemulsifier components.

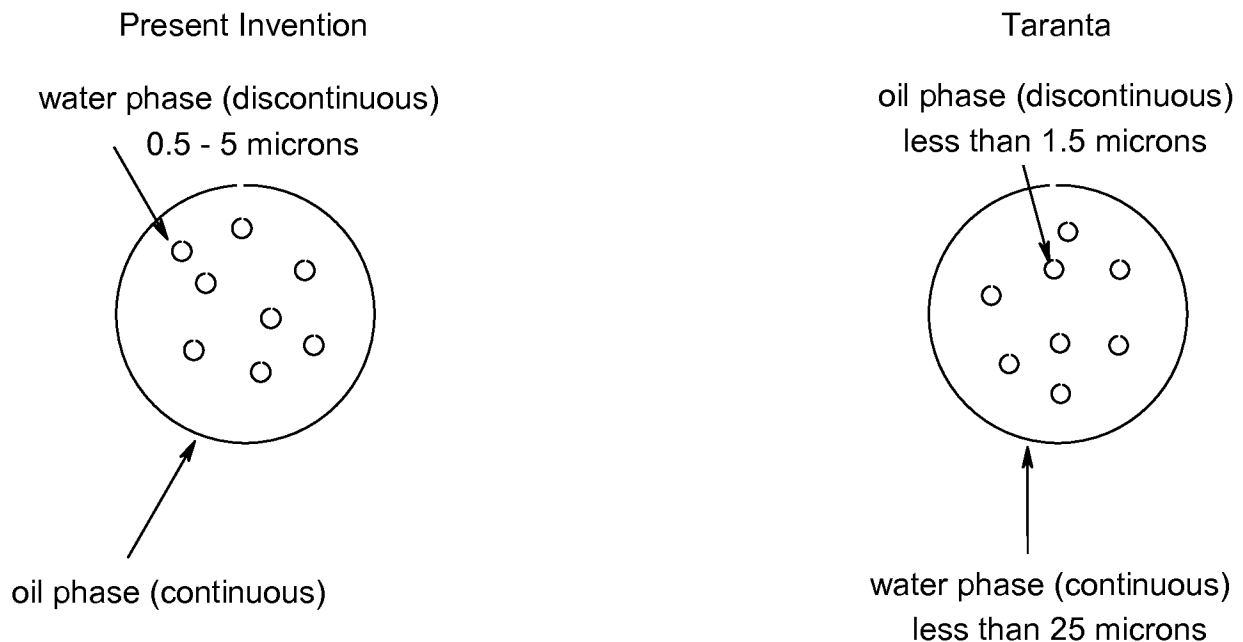
35 U.S.C. § 103

Claims 1-2, 7-8, 11, 17, and 19 have been rejected under 35 U.S.C. § 103(a) as obvious over Rodham et al. (US 2002/0025986) in view of Taranta (WO 02/08953) as described by the Examiner in item 13 of the present Office Action. Rodhan et al. recognize that W/O/W multiple emulsions are difficult to stabilize, particularly when an active material such as electrolytes are dissolved in any of the aqueous phases of the emulsion. Rodham et al. solve the emulsion instability problem by providing an encapsulated W/O/W multiple emulsion wherein at least one of a) the inner dispersion of aqueous phase droplets and b) the oil phase droplets are encapsulated within a polymer wall material (paragraph [0004]). There is no recognition that a stable W/O/W multiple emulsion absent a polymer wall encapsulant can exist. While Rodham et al. teach that the surfactant used to stabilize the primary water-in-oil emulsion can be selected from the reaction product of PIBSA and ethanolamine, there is no teaching of a secondary surfactant for the oil-in-water phase having an HLB number ranging from 8 to 20 as is now set forth in claim 1. Support for the amendment is found in claim 8 as originally filed. Moreover, there is no teaching or data presented in Rodham et al. that would be predictive of a successful stabilized W/O/W multiple emulsion without an encapsulating polymer associated with at least one of a) the inner dispersion of aqueous phase droplets and b) the oil phase droplets. There is no disclosure or teaching wherein the water phase of the internal water-in-oil emulsion comprises droplets having a mean diameter ranging from 0.1 to 5 microns.

The secondary citation to Taranta does not make up the deficiencies inherent in Rodham et al. Taranta concerns a O/W/O multiple emulsion wherein the internal phase comprises oil-in-water. The Examiner attempts to utilize the Taranta disclosure for its teaching of droplet size that allegedly overlaps with the instantly claimed invention. The Examiner recognizes that Taranta's O/W/O multiple emulsions differ from the instant W/O/W multiple emulsions but concludes that: "Although Taranta teaches an O/W/O emulsion, the benefit of small droplet size on stability would be expected to be the same for W/O/W multiple emulsions, especially since Taranta reference several W/O/W emulsions in their background section. While Taranta discusses and contrasts the deficiencies of several prior art multiple emulsion systems including W/O/W and O/W/O emulsions, the disclosure only provides a teaching (in terms of providing smaller droplet size) relative to O/W/O emulsions. There is no enabling disclosure that provides any teaching on how to effect small droplet size attributes in W/O/W emulsions. The provision of a small particle size emulsion is effected only through an O/W/O emulsion. There is no teaching, exemplification or data that the skilled artisan would consider predictive of the ability to effect small particle size attributes in stable W/O/W multiple emulsions.

With regard to the mean diameter ranges, the Examiner asserts that: "...that the claimed ranges overlap or lie within the ranges of the prior art and are therefor prima facie obvious". While the instantly claimed ranges may overlap in terms of numeric ranges, it is pointed out that subject matter embraced by the disclosed ranges does not. Applicants require that the water phase of the internal water-in-oil emulsion is comprised of droplets having a mean diameter of 0.1 to 5 microns. In other words, Applicants' internal phase comprises discontinuous water phase droplets which are dispersed within a continuous oil phase medium. The water phase droplets have a mean diameter of 0.1 to 5 microns. In sharp contrast, Taranta's internal phase is the inverse of that claimed by the Applicants herein. Taranta's internal phase is referred to as a "multiple phase droplet". The multiple phase droplet comprises a continuous water phase with discontinuous oil phase droplets dispersed therein. Taranta requires: 1) a multiple droplet size of less than 25 microns, preferably in the range of 3 to 24 microns (see page 3), and 2) the mean diameter of the oily phase droplets should be lower than 1.5 microns to ensure a good and stable quality of the O/W/O multiple emulsion (see page 9). The "multiple droplet" under requirement

1) is defined to mean the water droplet (continuous phase) containing the inner oily phase (discontinuous phase) (see page 3). The following schematic diagrams are representative of the internal phases of the present invention and taranta.



As can readily be surmised, Taranta's discontinuous phase (oil droplet) is not equivalent to the discontinuous phase (water droplet) of the instant invention. Simply stated, Taranta addressed the problem of stabilizing a multiple emulsion by controlling the diameter of the oil phase droplets within an O/W/O multiple emulsion. There is no disclosure whatsoever in Taranta that provides any teaching relating to the stabilization of W/O/W multiple emulsions by providing the claimed water droplet size as a discontinuous phase within a continuous oil phase. There is no evidence that controlling the water droplet size has any stabilization effect in a W/O/W multiple emulsion. Accordingly, the artisan of ordinary skill could aware of Taranta's O/W/O and the attendant oil droplet size could not predict that controlling the water phase droplet size in an W/O/W multiple emulsion would have any beneficial effect.

Claim 18 has been rejected under 35 U.S.C. § 103(a) as obvious over Rodham et al. in view of Taranta, and in further view of Griffin (Classification of Surface-Active Agents by "HLB") as described by the Examiner under item 14 of the present Office Action. Rodham et al.

and Taranta are discussed above. While Griffin may teach an oil-in-water emulsifier having an HLB ranging from 8 to 20, the citation does not make up the deficiencies of Rodham et al. and Taranta. As discussed, Rodham et al. and Taranta are not properly combinable and fail to make out a prima facie case of obviousness. The mere disclosure of oil-in-water emulsifier having an HLB range that overlaps with the claimed invention does not render the instant claims obvious.

Claim 3 been rejected under 35 U.S.C. § 103(a) as obvious over Rodham et al. in view of Taranta, and in further view of Hueffer et al. (WO 202/070633). While Hueffer et al. may teach that polyisobutenyl amines and polyisobutenyl succinic anhydrides are suitable emulsifiers for water-in-oil emulsions, the citation does not make up the deficiencies of Rodham et al. and Taranta. As discussed, Rodham et al. and Taranta are not properly combinable and fail to make out a prima facie case of obviousness. The mere disclosure of polyisobutenyl amines and polyisobutenyl succinic anhydrides as water-in- oil emulsifies does not render the instant claims obvious.

In view of the foregoing discussion, it is respectfully submitted that the amended claims are in condition for allowance. Accordingly, an early Notice of Allowance with respect to claims 1-3, 7, 8, 12-17, and 19 is earnestly solicited.

If the Examiner has any questions, please feel free to contact the undersigned at the telephone number noted below.

Respectfully submitted,

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